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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,902	02/19/2004	Charles Pfeil	003921.00191	9047
22907 7590 07/02/2008 BANNER & WITCOFF, LTD. 1100 13th STREET, N.W. SUITE 1200 WASHINGTON, DC 20005-4051			EXAMINER LEVIN, NAUM B	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/780,902	Applicant(s) PFEIL ET AL.	
	Examiner NAUM B. LEVIN	Art Unit 2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-11, 14-22 and 25-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-11, 14-22 and 25-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/19/04, 6/24/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/5/8, 5/9/8, 5/15/8, 6/2/8</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to application 10/780,902 and RCE filed on 05/05/2008. Claims 1-2, 12-13 and 23-24 have been canceled. Claims 3-11, 14-22 and 25-40 remain pending in the application.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 25, 33 and 40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A machine-readable storage medium having stored thereon data representing sequences of instructions is descriptive material and is not statutory if not claimed as a machine-readable storage **device** for storing data representing sequences of instructions, for example, carrier wave for transmitting instructions is not statutory since no requisite functionality is present to satisfy the practical application requirement, MPEP 2106.01.

4. Claim 11 is also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a claim or Specification asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 6, 8-10, 13, 15-17 and 20 are rejected under 35 U.S.C. 102(b) as being unpatentable by Gangadhar et al. (A Framework for Collaborative and Distributed Web-based Design; Design Automation Conference, 1999; Proceedings; 36th; 06/21 - 06/25; New Orleans, LA, USA; pages: 898-903).

6. As to claims 3, 11, 14, 22, 25, 33, 34, 39 and 40 Gangadhar discloses:

Claim 3 A method for editing a printed circuit board (PCB) master design during an editing session throughout which each of first and second users may edit a PCB master design and view edits made to the same PCB master design by the other of the first and second users during the editing session (Abstract; page 901, right col., lines 9-59; Fig.6), **comprising:**

transmitting at least a portion of the PCB master design (using the Internet transmitting/accessing a portion of design data/micro-system design/PCB from a server database/master design to a client/user/designer/team - Abstract; page 898, left col., lines 17- 47; right col., lines 1- 4; right col., lines 12- 33) **to the first and second users at respective first and second clients** (Figs.2-3) **for simultaneous graphical display on each of said clients** (A collaborative environment is essential for coordinating the work of the designers working remotely on a project ... to create an environment where

all the designers can see a consistent view of the design in their edit windows/simultaneous graphical display - page 899, right col., lines 6-16; All designer actions generate events to be sent to other designers for simultaneous view - page 899, right col., lines 25-31), **wherein**

each of the graphical displays on the first and second clients includes a representation of common PCB artwork corresponding to a region of the PCB master design (page 899, right col., lines 31-38; Fig.2; each designer client notifies the server of session name/common PCB artwork corresponding to a region of the PCB master design to join - page 900, left col., lines 31-33; Fig.3), **the displayed common PCB artwork including a plurality of associated PCB design objects** (in each session designers/client edit window displays schematics including components/cells/parts/objects of associated PCB - page 899, right col., lines 11-26; page 900, left col., lines 10-17), **and**

each of the first and second clients can simultaneously view the common PCB artwork and edit the associated PCB design objects (In order to make the framework collaborative, the effect of all of the events/edits caused by one designer's actions/edits inside the joined session should be seen/simultaneously viewed by all other designers in the view of their editor - page 899, right col., lines 25-31; page 899, right col., lines 36-42; page 900, left col., lines 10-17; page 901, left col., lines 30-45);

receiving, during the editing session, a first edit request from the first client and a second edit request from the second client (the server receives from first and second/multiple clients message/event/edit request - page 900, left col., lines 27-42

when a client designer joins an editing session which is already in progress/during the editing session - page 901, left col., lines 15-32);

applying the first and second edit requests to the PCB master design

(Clients A and B collaboratively edit the design/PCB master design – page 901, right col., lines 9 -59; Fig.6); and

transmitting synchronization data to the first and second clients the synchronization data permitting update of the graphical displays on the first and second clients during the editing session to reflect the first and second edits (all clients receive the synchronize message that updates/all edit events are collaborative schematic editors/graphical displays during editing session - page 901, right col., lines 9-59; Fig.6);

Claim 11 A method for editing a printed circuit board (PCB) master design during an editing session throughout which each of first and second users may edit a PCB master design and view edits made to the same PCB master design by the other of the first and second users during the editing session (Abstract; page 901, right col., lines 9-59; Fig.6), **comprising:**

transmitting at least a portion of the PCB master design (using the Internet transmitting/accessing a portion of design data/micro-system design/PCB from a server database/master design to a client/user/designer/team - Abstract; page 898, left col., lines 17- 47; right col., lines 1- 4; right col., lines 12- 33) **to the first and second users at respective first and second clients** (Figs.2-3) **for simultaneous graphical display on each of said clients** (A collaborative environment is essential for coordinating the

work of the designers working remotely on a project ... to create an environment where all the designers can see a consistent view of the design in their edit windows/simultaneous graphical display - page 899, right col., lines 6-16; All designer actions generate events to be sent to other designers for simultaneous view - page 899, right col., lines 25-31), **wherein**

each of the graphical displays on the first and second clients includes a representation of common PCB artwork corresponding to a region of the PCB master design (page 899, right col., lines 31-38; Fig.2; each designer client notifies the server of session name/common PCB artwork corresponding to a region of the PCB master design to join - page 900, left col., lines 31-33; Fig.3), **the displayed common PCB artwork including a plurality of associated PCB design objects** (in each session designers/client edit window displays schematics including components/cells/parts/objects of associated PCB - page 899, right col., lines 11-26; page 900, left col., lines 10-17), **and**

each of the first and second clients can simultaneously view the common PCB artwork and edit the associated PCB design objects (In order to make the framework collaborative, the effect of all of the events/edits caused by one designer's actions/edits inside the joined session should be seen/simultaneously viewed by all other designers in the view of their editor - page 899, right col., lines 25-31; page 899, right col., lines 36-42; page 900, left col., lines 10-17; page 901, left col., lines 30-45);

receiving, during the editing session, a first edit request from the first client and a second edit request from the second client (the server receives from first and

second/multiple clients message/event/edit request - page 900, left col., lines 27-42
when a client designer joins an editing session which is already in progress/during the
editing session - page 901, left col., lines 15-32);

applying the first edit request to the PCB master design (Client A edit the
design/PCB master design – Fig.6); and

transmitting synchronization data to the first and second clients the
synchronization data permitting update of the graphical displays on the first and
second clients during the editing session to reflect the first and second edits (all
clients receive the synchronize message that updates/all edit events are collaborative
schematic editors/graphical displays during editing session - page 901, right col., lines
9-59; Fig.6);

determining if the first edit request conflicts with the second edit request
(server receives messages from first and second clients in for of events during edit
sessions, one of the events is a MouseEvent, which locks edit on the second client's
editor. Server determines based on the first client's message if it uses mouse/edits his
schematic/artwork/first edit conflict with the second edit request - page 902, left col.);
and

reporting a conflict between the first and second edit requests to the
second client (server sends message to the second client in case of locking - page
902, left col.);

**Claim 14 A server for receiving and processing requests to edit a printed
circuit board (PCB) master design during an editing session throughout which**

each of first and second users may edit a PCB master design and view edits made to the same PCB master design by the other of the first and second users during the editing session (Abstract; page 901, right col., lines 9-59; Figs.3, 6), **comprising:**

a database for maintaining the master design (page 898, right col., lines 25-27);

connections to first and second clients (Fig.3) ; **and**

a processor/CAD (Abstract) **configured to**

transmit at least a portion of the PCB master design (using the Internet transmitting/accessing a portion of design data/micro-system design/PCB from a server database/master design to a client/user/designer/team - Abstract; page 898, left col., lines 17- 47; right col., lines 1- 4; right col., lines 12- 33) **to the first and second users at respective first and second clients** (Figs.2-3) **for simultaneous graphical display on each of said clients** (A collaborative environment is essential for coordinating the work of the designers working remotely on a project ... to create an environment where all the designers can see a consistent view of the design in their edit windows/simultaneous graphical display - page 899, right col., lines 6-16; All designer actions generate events to be sent to other designers for simultaneous view - page 899, right col., lines 25-31), **wherein**

each of the graphical displays on the first and second clients includes a representation of common PCB artwork corresponding to a region of the PCB master design (page 899, right col., lines 31-38; Fig.2; each designer client notifies the

server of session name/common PCB artwork corresponding to a region of the PCB master design to join - page 900, left col., lines 31-33; Fig.3), **the displayed common PCB artwork including a plurality of associated PCB design objects** (in each session designers/client edit window displays schematics including components/cells/parts/objects of associated PCB - page 899, right col., lines 11-26; page 900, left col., lines 10-17), **and**

each of the first and second clients can simultaneously view the common PCB artwork and edit the associated PCB design objects (In order to make the framework collaborative, the effect of all of the events/edits caused by one designer's actions/edits inside the joined session should be seen/simultaneously viewed by all other designers in the view of their editor - page 899, right col., lines 25-31; page 899, right col., lines 36-42; page 900, left col., lines 10-17; page 901, left col., lines 30-45);

receive, during the editing session, a first edit request from the first client and a second edit request from the second client (the server receives from first and second/multiple clients message/event/edit request - page 900, left col., lines 27-42 when a client designer joins an editing session which is already in progress/during the editing session - page 901, left col., lines 15-32);

apply the first and second edit requests to the PCB master design (Clients A and B collaboratively edit the design/PCB master design – page 901, right col., lines 9 - 59; Fig.6); and

transmit synchronization data to the first and second clients the synchronization data permitting update of the graphical displays on the first and

second clients during the editing session to reflect the first and second edits (all clients receive the synchronize message that updates/all edit events are collaborative schematic editors/graphical displays during editing session - page 901, right col., lines 9-59; Fig.6);

Claim 22 A server for receiving and processing requests to edit a printed circuit board (PCB) master design during an editing session throughout which each of first and second users may edit a PCB master design and view edits made to the same PCB master design by the other of the first and second users during the editing session (Abstract; page 901, right col., lines 9-59; Figs.3, 6),
comprising:

a database for maintaining the master design (page 898, right col., lines 25-27);

connections to first and second clients (Fig.3) ; and

a processor/CAD (Abstract) **configured to**

transmit at least a portion of the PCB master design (using the Internet transmitting/accessing a portion of design data/micro-system design/PCB from a server database/master design to a client/user/designer/team - Abstract; page 898, left col., lines 17- 47; right col., lines 1- 4; right col., lines 12- 33) **to the first and second users at respective first and second clients** (Figs.2-3) **for simultaneous graphical display on each of said clients** (A collaborative environment is essential for coordinating the work of the designers working remotely on a project ... to create an environment where all the designers can see a consistent view of the design in their edit

windows/simultaneous graphical display - page 899, right col., lines 6-16; All designer actions generate events to be sent to other designers for simultaneous view - page 899, right col., lines 25-31), **wherein**

each of the graphical displays on the first and second clients includes a representation of common PCB artwork corresponding to a region of the PCB master design (page 899, right col., lines 31-38; Fig.2; each designer client notifies the server of session name/common PCB artwork corresponding to a region of the PCB master design to join - page 900, left col., lines 31-33; Fig.3), **the displayed common PCB artwork including a plurality of associated PCB design objects** (in each session designers/client edit window displays schematics including components/cells/parts/objects of associated PCB - page 899, right col., lines 11-26; page 900, left col., lines 10-17), **and**

each of the first and second clients can simultaneously view the common PCB artwork and edit the associated PCB design objects (In order to make the framework collaborative, the effect of all of the events/edits caused by one designer's actions/edits inside the joined session should be seen/simultaneously viewed by all other designers in the view of their editor - page 899, right col., lines 25-31; page 899, right col., lines 36-42; page 900, left col., lines 10-17; page 901, left col., lines 30-45);

receive, during the editing session, a first edit request from the first client and a second edit request from the second client (the server receives from first and second/multiple clients message/event/edit request - page 900, left col., lines 27-42

when a client designer joins an editing session which is already in progress/during the editing session - page 901, left col., lines 15-32);

apply the first and second edit requests to the PCB master design (Clients A and B collaboratively edit the design/PCB master design – page 901, right col., lines 9 - 59; Fig.6); and

transmit synchronization data to the first and second clients the synchronization data permitting update of the graphical displays on the first and second clients during the editing session to reflect the first and second edits (all clients receive the synchronize message that updates/all edit events are collaborative schematic editors/graphical displays during editing session - page 901, right col., lines 9-59; Fig.6);

determine if the first edit request conflicts with the second edit request (server receives messages from first and second clients in for of events during edit sessions, one of the events is a MouseEvent, which locks edit on the second client's editor. Server determines based on the first client's message if it uses mouse/edits his schematic/artwork/first edit conflict with the second edit request - page 902, left col.);

and

report a conflict between the first and second edit requests to the second client (server sends message to the second client in case of locking - page 902, left col.);

Claim 25 A machine-readable storage medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform steps comprising (page 900, right col., lines 27-44):

transmitting at least a portion of the PCB master design (using the Internet transmitting/accessing a portion of design data/micro-system design/PCB from a server database/master design to a client/user/designer/team - Abstract; page 898, left col., lines 17- 47; right col., lines 1- 4; right col., lines 12- 33) **to the first and second users at respective first and second clients** (Figs.2-3) **for simultaneous graphical display on each of said clients** (A collaborative environment is essential for coordinating the work of the designers working remotely on a project ... to create an environment where all the designers can see a consistent view of the design in their edit windows/simultaneous graphical display - page 899, right col., lines 6-16; All designer actions generate events to be sent to other designers for simultaneous view - page 899, right col., lines 25-31), **wherein**

each of the graphical displays on the first and second clients includes a representation of common PCB artwork corresponding to a region of the PCB master design (page 899, right col., lines 31-38; Fig.2; each designer client notifies the server of session name/common PCB artwork corresponding to a region of the PCB master design to join - page 900, left col., lines 31-33; Fig.3), **the displayed common PCB artwork including a plurality of associated PCB design objects** (in each session designers/client edit window displays schematics including

components/cells/parts/objects of associated PCB - page 899, right col., lines 11-26;
page 900, left col., lines 10-17), **and**

each of the first and second clients can simultaneously view the common PCB artwork and edit the associated PCB design objects (In order to make the framework collaborative, the effect of all of the events/edits caused by one designer's actions/edits inside the joined session should be seen/simultaneously viewed by all other designers in the view of their editor - page 899, right col., lines 25-31; page 899, right col., lines 36-42; page 900, left col., lines 10-17; page 901, left col., lines 30-45);

receiving, during the editing session, a first edit request from the first client and a second edit request from the second client (the server receives from first and second/multiple clients message/event/edit request - page 900, left col., lines 27-42 when a client designer joins an editing session which is already in progress/during the editing session - page 901, left col., lines 15-32);

applying the first and second edit requests to the PCB master design (Clients A and B collaboratively edit the design/PCB master design – page 901, right col., lines 9 -59; Fig.6); and

transmitting synchronization data to the first and second clients the synchronization data permitting update of the graphical displays on the first and second clients during the editing session to reflect the first and second edits (all clients receive the synchronize message that updates/all edit events are collaborative schematic editors/graphical displays during editing session - page 901, right col., lines 9-59; Fig.6);

Claim 33 A machine-readable storage medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform steps comprising (page 900, right col., lines 27-44):

transmitting at least a portion of the PCB master design (using the Internet transmitting/accessing a portion of design data/micro-system design/PCB from a server database/master design to a client/user/designer/team - Abstract; page 898, left col., lines 17- 47; right col., lines 1- 4; right col., lines 12- 33) **to the first and second users at respective first and second clients** (Figs.2-3) **for simultaneous graphical display on each of said clients** (A collaborative environment is essential for coordinating the work of the designers working remotely on a project ... to create an environment where all the designers can see a consistent view of the design in their edit windows/simultaneous graphical display - page 899, right col., lines 6-16; All designer actions generate events to be sent to other designers for simultaneous view - page 899, right col., lines 25-31), **wherein**

each of the graphical displays on the first and second clients includes a representation of common PCB artwork corresponding to a region of the PCB master design (page 899, right col., lines 31-38; Fig.2; each designer client notifies the server of session name/common PCB artwork corresponding to a region of the PCB master design to join - page 900, left col., lines 31-33; Fig.3), **the displayed common PCB artwork including a plurality of associated PCB design objects** (in each session designers/client edit window displays schematics including

components/cells/parts/objects of associated PCB - page 899, right col., lines 11-26;
page 900, left col., lines 10-17), **and**

each of the first and second clients can simultaneously view the common PCB artwork and edit the associated PCB design objects (In order to make the framework collaborative, the effect of all of the events/edits caused by one designer's actions/edits inside the joined session should be seen/simultaneously viewed by all other designers in the view of their editor - page 899, right col., lines 25-31; page 899, right col., lines 36-42; page 900, left col., lines 10-17; page 901, left col., lines 30-45);

receiving, during the editing session, a first edit request from the first client and a second edit request from the second client (the server receives from first and second/multiple clients message/event/edit request - page 900, left col., lines 27-42 when a client designer joins an editing session which is already in progress/during the editing session - page 901, left col., lines 15-32);

applying the first and second edit requests to the PCB master design (Clients A and B collaboratively edit the design/PCB master design – page 901, right col., lines 9 -59; Fig.6); and

transmitting synchronization data to the first and second clients the synchronization data permitting update of the graphical displays on the first and second clients during the editing session to reflect the first and second edits (all clients receive the synchronize message that updates/all edit events are collaborative schematic editors/graphical displays during editing session - page 901, right col., lines 9-59; Fig.6);

determining if the first edit request conflicts with the second edit request
(server receives messages from first and second clients in for of events during edit sessions, one of the events is a MouseEvent, which locks edit on the second client's editor. Server determines based on the first client's message if it uses mouse/edits his schematic/artwork/first edit conflict with the second edit request - page 902, left col.);
and

reporting a conflict between the first and second edit requests to the second client (server sends message to the second client in case of locking - page 902, left col.);

Claim 34 A method for editing a printed circuit board (PCB) master design, comprising:

displaying on first and second clients a representation of common PCB artwork corresponding to a region of a PCB master design (in each session designers/client edit window displays schematics including components/cells/parts/objects of associated PCB - page 899, right col., lines 11-26; page 900, left col., lines 10-17), **wherein the displayed PCB artwork includes a plurality of associated PCB design objects** (page 899, right col., lines 31-38; Fig.2; each designer client notifies the server of session name/common PCB artwork corresponding to a region of the PCB master design to join - page 900, left col., lines 31-33; Fig.3), **and wherein each of the first and second clients can simultaneously view the common PCB artwork and edit the associated PCB design objects** (In order to make the framework collaborative, the effect of all of the events/edits caused by

Art Unit: 2825

one designer's actions/edits inside the joined session should be seen/simultaneously viewed by all other designers in the view of their editor - page 899, right col., lines 25-31; page 899, right col., lines 36-42; page 900, left col., lines 10-17; page 901, left col., lines 30-45);

editing the PCB master design from the first client during an editing session throughout which each of first and second users at the respective first and second clients may edit the PCB master design and view edits made to the PCB master design by the other of the first and second users during the editing session (Clients A and B collaboratively edit the design/PCB master design – page 899, right col., lines 25-42; page 900, left col., lines 10-17; page 901, left col., lines 30-45; page 901, right col., lines 9 -59; Figs.5-6);

editing the PCB master design from the second client during the editing session (Clients A and B collaboratively edit the design/PCB master design – page 899, right col., lines 25-42; page 900, left col., lines 10-17; page 901, left col., lines 30-45; page 901, right col., lines 9 -59; Figs.5-6);

updating the display of the first client, during the editing session, to reflect one or more edits made from the second client during the editing session (all clients receive the synchronize message that updates/all edit events are collaborative schematic editors/graphical displays during editing session - page 901, right col., lines 9-59; Fig.6); and

updating the display of the second client, during the editing session, to reflect one or more edits made from the first client during the editing session (all

clients receive the synchronize message that updates/all edit events are collaborative schematic editors/graphical displays during editing session - page 901, right col., lines 9-59; Fig.6);

Claim 39 A method for editing a printed circuit board (PCB) master design during an editing session throughout which each of first and second users may edit exclusive sub-portions of a PCB master design and view edits made to the PCB master design by the other of the first and second users during the editing session (the first and second users may highlight portions of the design/exclusive sub-portions and give other user the rights only view/ read-only the edited design without right to edit it - page 900, left col., lines 10-17), **comprising:**

transmitting at least a portion of the PCB master design (using the Internet transmitting/accessing a portion of design data/micro-system design/PCB from a server database/master design to a client/user/designer/team - Abstract; page 898, left col., lines 17- 47; right col., lines 1- 4; right col., lines 12- 33) **to the first and second users at respective first and second clients** (Figs.2-3) **for simultaneous graphical display on each of said clients** (A collaborative environment is essential for coordinating the work of the designers working remotely on a project ... to create an environment where all the designers can see a consistent view of the design in their edit windows/simultaneous graphical display - page 899, right col., lines 6-16; All designer actions generate events to be sent to other designers for simultaneous view - page 899, right col., lines 25-31), **the PCB master design portion including first and second exclusive sub-portions** (the first user may highlight the first portion of his

session/design/first exclusive sub-portion and give second user the rights only view/ read-only the exclusive first sub-portion without right to edit it by second user and second user may highlight the second portion of his session/design/second exclusive sub-portion and give first user the rights only view/ read-only the exclusive second sub-portion without right to edit it by first user - page 900, left col., lines 10-17),

each of the graphical displays on the first and second clients including a representation of common PCB artwork corresponding to a region of a PCB master design (page 899, right col., lines 31-38; Fig.2; each designer client notifies the server of session name/common PCB artwork corresponding to a region of the PCB master design to join - page 900, left col., lines 31-33; Fig.3), **the region including first and second sub-regions respectively corresponding to the first and second exclusive sub-portions** (page 900, left col., lines 10-17), **wherein**

the displayed common PCB artwork includes a plurality of PCB design objects associated with the first sub-region and a plurality of PCB design objects associated with the second sub-region (in each session designers/client edit window displays schematics including components/cells/parts/objects of associated PCB - page 899, right col., lines 11-26; page 900, left col., lines 10-17),

the first client can simultaneously edit PCB design objects associated with the first sub-region and view edits being made to PCB design objects associated with the second sub-region (the first user has rights to edit first/his sub-region and read-only/view rights of edits made in second sub-region by second user - page 900, left col., lines 10-17), **and**

the second client can simultaneously edit PCB design objects associated with the second sub-region and view edits being made to PCB design objects associated with the first sub –region (the second user has rights to edit second/his sub-region and read-only/view rights of edits made in first sub-region by first user - page 900, left col., lines 10-17);

receiving edit requests from the first and second clients during the editing session (the server receives from first and second/multiple clients message/event/edit request - page 900, left col., lines 27-42 when a client designer joins an editing session which is already in progress/during the editing session - page 901, left col., lines 15-32);

accepting requests from the first client to edit PCB design objects associated with the first sub –region (When a designer edits (without read-only limitation to other designers) a schematic, several events are generated. These events can either be propagated/accepted to all other designers (peer-to peer) or sent/accepted to a central server which broadcasts these events to all the designers (client-server) - page 899, right col., last paragraph);

accepting requests from the second client to edit PCB design objects associated with the second sub-region (When a designer edits (without read-only limitation to other designers) a schematic, several events are generated. These events can either be propagated/accepted to all other designers (peer-to peer) or sent/accepted to a central server which broadcasts these events to all the designers (client-server) - page 899, right col., last paragraph);

rejecting requests from the first client to edit PCB design objects associated with the second sub-region (page 900, left col., lines 10-17; page 902, left col.);

rejecting requests from the second client to edit PCB design objects associated with the first sub-region (page 900, left col., lines 10-17; page 902, left col.); and

transmitting synchronization data to the first and second clients, the synchronization data permitting update of the graphical displays on each of the first and second clients during the editing session to reflect application of the accepted edit requests to the respective first and second sub-regions (all clients receive the synchronize message that updates/all edit events are collaborative schematic editors/graphical displays during editing session - page 901, right col., lines 9-59; Fig.6).

Claim 40 A machine-readable storage medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform steps comprising (page 900, right col., lines 27-44):

transmitting at least a portion of the PCB master design (using the Internet transmitting/accessing a portion of design data/micro-system design/PCB from a server database/master design to a client/user/designer/team - Abstract; page 898, left col., lines 17- 47; right col., lines 1- 4; right col., lines 12- 33) **to the first and second users at respective first and second clients** (Figs.2-3) **for simultaneous graphical display on each of said clients** (A collaborative environment is essential for coordinating the

work of the designers working remotely on a project ... to create an environment where all the designers can see a consistent view of the design in their edit windows/simultaneous graphical display - page 899, right col., lines 6-16; All designer actions generate events to be sent to other designers for simultaneous view - page 899, right col., lines 25-31), **the PCB master design portion including first and second exclusive sub-portions** (the first user may highlight the first portion of his session/design/first exclusive sub-portion and give second user the rights only view/read-only the exclusive first sub-portion without right to edit it by second user and second user may highlight the second portion of his session/design/second exclusive sub-portion and give first user the rights only view/read-only the exclusive second sub-portion without right to edit it by first user - page 900, left col., lines 10-17),

each of the graphical displays on the first and second clients including a representation of common PCB artwork corresponding to a region of a PCB master design (page 899, right col., lines 31-38; Fig.2; each designer client notifies the server of session name/common PCB artwork corresponding to a region of the PCB master design to join - page 900, left col., lines 31-33; Fig.3), **the region including first and second sub-regions respectively corresponding to the first and second exclusive sub-portions** (page 900, left col., lines 10-17), **wherein**

the displayed common PCB artwork includes a plurality of PCB design objects associated with the first sub-region and a plurality of PCB design objects associated with the second sub-region (in each session designers/client edit window

displays schematics including components/cells/parts/objects of associated PCB - page 899, right col., lines 11-26; page 900, left col., lines 10-17),

the first client can simultaneously edit PCB design objects associated with the first sub-region and view edits being made to PCB design objects associated with the second sub-region (the first user has rights to edit first/his sub-region and read-only/view rights of edits made in second sub-region by second user - page 900, left col., lines 10-17), and

the second client can simultaneously edit PCB design objects associated with the second sub-region and view edits being made to PCB design objects associated with the first sub –region (the second user has rights to edit second/his sub-region and read-only/view rights of edits made in first sub-region by first user - page 900, left col., lines 10-17);

receiving edit requests from the first and second clients during the editing session (the server receives from first and second/multiple clients message/event/edit request - page 900, left col., lines 27-42 when a client designer joins an editing session which is already in progress/during the editing session - page 901, left col., lines 15-32);

accepting requests from the first client to edit PCB design objects associated with the first sub –region (When a designer edits (without read-only limitation to other designers) a schematic, several events are generated. These events can either be propagated/accepted to all other designers (peer-to peer) or sent/accepted to a central server which broadcasts these events to all the designers (client-server) - page 899, right col., last paragraph);

accepting requests from the second client to edit PCB design objects associated with the second sub-region (When a designer edits (without read-only limitation to other designers) a schematic, several events are generated. These events can either be propagated/accepted to all other designers (peer-to peer) or sent/accepted to a central server which broadcasts these events to all the designers (client-server) - page 899, right col., last paragraph);

rejecting requests from the first client to edit PCB design objects associated with the second sub-region (page 900, left col., lines 10-17; page 902, left col.);

rejecting requests from the second client to edit PCB design objects associated with the first sub-region (page 900, left col., lines 10-17; page 902, left col.); and

transmitting synchronization data to the first and second clients, the synchronization data permitting update of the graphical displays on each of the first and second clients during the editing session to reflect application of the accepted edit requests to the respective first and second sub-regions (all clients receive the synchronize message that updates/all edit events are collaborative schematic editors/graphical displays during editing session - page 901, right col., lines 9-59; Fig.6).

7. As to claims 4-10, 15-21, 26-32 and 35-38 Gangadhar recites:

Claims 4, 15, 26, 35, 37 The method/server/program, further comprising locking that PCB design object so as to prevent editing of that PCB design object based on a request received from the second client (page 900, left col., lines 10-17);

Claims 5, 10, 16, 21, 27, 32, 36 The method/server/program, wherein the selected PCB design object is at least one of a route, a component, a trace, a via, text, and a drawing object, and the command is at least one of move left, move right, delete and add (page 899; Fig. 5);

Claims 6, 9, 17, 20, 28, 31 The method/server/program, further comprising placing the first and second edit requests in a queue and applying the first and second edit requests on a first-in-first-out (FIFO) basis (page 900, right col.; page 901, left col.);

Claims 7, 18, 29, 38 The method/server/program, wherein transmitting at least a portion of the PCB master design comprises transmitting the entire PCB master design (Abstract; page 898, left col., lines 17- 47; right col., lines 1- 4; right col., lines 12- 33);

Claims 8, 19, 30 The method/server/program, further comprises determining if the first edit request conflicts with the second edit request (page 900, left col., lines 10-17; page 902, left col.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 9, 20 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gangadhar in view of Skoll et al. (US Patent 6,684,379).

With respect to claims 9, 20 and 31 Gangadhar teaches the features above but lacks a method/server/program for editing a master design during a collaborative editing session further comprises determining if the first user edit request conflicts with the second user edit request based on at least one of violations: a connectivity rule, a spacing rule and a geometry rule.

9. As to claims 9, 20 and 31 Skoll teaches:

A method/server/program for editing a master design (col.2, ll.66-67; col.3, ll.1-27) **during a collaborative editing session** (col.14, ll.27-45) **further comprises determining if the first user edit request conflicts with the second user edit request** (Annotation merging/editing enables the loading of annotation objects owned by other engineer analysts/second user 210 – col.14, ll.48-50;) **based on at least one of violations: a spacing rule and a geometry rule, a connectivity rule** (If the connected set of annotations objects of the first and second user has two or more different signal values (step 558), an attempt is made to propagate the signals until

conflicts arise (step 568). The conflicts are flagged for display (step 570) – col.15, ll.6-27; Fig. 14).

It would have been obvious to a person of ordinary skills in the art at the time the invention was made to improve Gangadhar's teaching regarding the method/server/program for editing a master design during a collaborative editing session by including Skoll's invention that determines if the first user edit request conflicts with the second user edit request based on at least one of violations: a connectivity rule, a spacing rule and a geometry rule to improve reliability and making the collaborative circuit design less time consuming (col.2, ll.56-63).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NAUM B. LEVIN whose telephone number is (571)272-1898. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on 571-272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2825

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Naum Levin/
Examiner
Art Unit 2825